## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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| In re application of | ) | Examiner: P. HSIEH |
| J. ROSENFELD | ) | |
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| Serial No.: 10/580,497 | ) | |
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| Filed: May 23, 2006 | ) | |
| | ) | |
| For: **POSITIONING METHOD** | ) | |
| **AND APPARATUS** | ) | |
| | ) | |
| Date of Examiner's Answer: | ) | |
| November 10, 2009 | ) | |
| | ) | |
| Attorney Docket No.: | ) | Cleveland, OH 44114 |
| PHGB030214US / PKRX 2 00113 | ) | December 29, 2009 |

## REPLY BRIEF

Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Reply Brief is responsive to the Examiner's Answer of November 10, 2009. This Brief is responsive to new points raised in the Examiner's Answer.

### EXAMINER'S ANSWER SECTIONS (1)-(5), (7) & (8)

The Appellant and the Examiner appear to be in agreement concerning Sections (1)-(5), (7), and (8) of the Appeal Brief and the Examiner's Answer.

### EXAMINER'S ANSWER SECTIONS (6) & (9)

When the Appeal Brief was prepared, there was ambiguity because the Advisory Action did not expressly withdraw the 35 U.S.C. § 101 rejection nor did it assert or reaffirm the 35 U.S.C. § 101 rejection. The Examiner's Answer clarifies that there is no outstanding 35 U.S.C. § 101 rejection because no 35 U.S.C. § 101 rejection is set forth in Section (9) Grounds of Rejection. See also Section (10)(G).

The 35 U.S.C. § 102 and 35 U.S.C. § 103 rejections of Section (9) are, with one exception, word for word, the same as the rejections set forth in the Final

Rejection. Section (9) now lists claim 27 among the claims rejected under 35 U.S.C. § 103. But, the Examiner's application of the two references under 35 U.S.C. § 103 has not changed. Accordingly, it is believed that the appellant is not entitled to address the assertions made in Section (9) at the present time but rather relies on the Appeal Brief to address these issues.

## EXAMINER'S ANSWER SECTION (10) – RESPONSE TO ARGUMENT

The appellant suggests that the Board may find it advantageous to consider section (K) below and in the Examiner's Answer before sections (A)-(J). The Examiner asserts that the primary reference, Goran, decides between two processing operations which assertion the appellant challenges. In section (K), the Examiner finally spells out exactly where in Goran he believes the second decision step lies. Once the Examiner clarified which part of Goran he is applying as the second decision step, the appellant was able to point out in detail why the sections of Goran referenced by the Examiner do not show a second decision step as alleged by the Examiner. Although the appellant has asserted numerous reasons why the Examiner's rejection of each of the claims is incorrect, it is submitted that the existence of a second test in Goran is central to all of the Examiner's rejections and that, if the Board agrees with the appellant's assertions that Goran discloses no second test, then all of the Examiner's rejections fail.

### (A)    Claims 2-4 & 6 Are Not Anticipated By Goran

The Examiner erroneously asserts that in Figure 15 and column 2, lines 43-59, that one of leading edge detection 1585 and channel estimation 1590 is selected based on the decision step 1575. If the decision step 1575 determines that the correlation function is not sufficient to estimate the time of arrival (TOA), then Goran does not try to do so. Rather, Goran returns to step 1570 and reevaluates the correlation function based on more recently-received signals to determine if the time of arrival can now be determined. Decision step 1575 does not decide between time of arrival estimation processes.

Rather, if step 1575 determines that the signal quality is adequate to estimate the time of arrival, then step 1580 performs its designated time of arrival designation process. Column 22, lines 43-59 of Goran indicates that different time of

arrival estimation techniques may be used in different embodiments. In one embodiment, the process for determining the time of arrival may use the $\tau$ from step 1570. In another embodiment $C(\tau)$ is maximized first. In another embodiment $C(\tau)$ is minimized. In yet another embodiment, the time of arrival is determined using a leading edge detection technique 1585.

Although Goran discloses that there are potential different embodiments of techniques for determining the time of arrival, in step 1580, Goran performs the given time of arrival estimation technique that is used in the present embodiment whenever decision step 1575 determines that the signal quality is adequate to estimate the time of arrival. The decision step 1575 is not the basis for deciding among a plurality of time of arrival estimation techniques, much less a basis for deciding between a correlation processing operation and a leading edge processing operation because the decision step 1575 of Goran does not select between correlation processing and edge detection processing in step 1580. As described in Section (K) below, the time of arrival estimationstep 1580 of Goran does not include a decision step.

Accordingly, claim 2 and claims 3, 4, and 6 dependent therefrom are not anticipated by Goran.


### (B)     Claim 3 is Not Anticipated by Goran

In Goran, decision step 1575 is performed after the correlation processing step 1570. If the signal is of sufficient quality, then the time of arrival is estimated. Goran does not teach selecting between two time of arrival estimation algorithms in response to the decision step 1575. Rather, Goran teaches that if the signal is adequate, the time of arrival is estimated using whatever technique the present embodiment uses and if it is not, the method loops back repeating the correlation processing and deciding again whether the signal is adequate. The looping back continues until the signal becomes adequate for time of arrival estimation. Goran does not decide between two time of arrival estimation techniques based on decision step 1575, much less choose correlation processing in response to a dual decision that (a) the signal is adequate to estimate the time of arrival and further (b) that correlation processing should be performed due to the signal being below

some threshold level. Accordingly, it is submitted that claim 3 is not anticipated by Goran.

### (C)    Claim 4 is Patentable Over Goran As Modified by Diener

Claim 4 calls for a second test to be performed. That is, once it is determined that the signal level is above a threshold value as stated in claim 2, then a second test is performed to determine if the leading edge gradient is above a threshold value. The appellant disagrees with the Examiner's assertion that Goran teaches two tests. Goran has a single decision block 1575 which performs one test. If decision block 1575 determines that the signal is of adequate quality, then the time of arrival is estimated.

No second decision step is illustrated in Figures 15 or 15A or disclosed in column 22, lines 43-59. Figure 15A explains what the mathematical operations and decisions of Figure 15 connote relative to an actual signal, but do not disclose or fairly suggest a second step:

It is submitted that there is no second test disclosed in these Figures or in this section of Goran. The Examiner appears to define an alleged second step in Figure 15A and the description of it in column 22, lines 50-59. Although this section of Goran does describe line sight peaks and multipeaks, it is submitted that this section of Goran does not describe or fairly suggest any test to determine whether a given signal is a line of sight peak or a multipeak, nor does Goran disclose changing the type of processing to be applied based on whether a peak is a line of sight peak or a multipeak. The method of Goran is shown in Figure 15 (Goran, column 3, lines 37-39). Figure 15A of Goran is illustrative of a correlation signal that may be processed in accordance with the method of Figure 15 (Goran, column 3, lines 40-42). Neither Figure 15A nor column 22 of Goran disclose or fairly teach a second test for determining whether a signal is a line of sight peak or a multipeak.

Diener, as the Examiner appears to concede, does not cure this shortcoming in that Diener, as well, does not show two decision steps. Accordingly, it is submitted that claim 4 distinguishes patentably over the references of record.

(D)     Claim 6 Distinguishes Patentably Over the References

Claim 6 further specifies which processing operation should be selected in response to the two tests, both being above their respective threshold values. In Section (B) of the Examiner's Answer, the Examiner asserts that Goran teaches using correlation process when the received signal is *below* a threshold value. Now, in claim 6, the Examiner has changed his position and asserts that Goran as modified by Diener suggests that correlation processing should be performed in response to the received signal being *above* a threshold value and further when a leading edge gradient is above a gradient threshold value. It is submitted that the Examiner's inconsistent interpretation of Goran regarding claims 3 and 6 emphasizes that the claims distinguish patentably over the references of record.

Accordingly, it is submitted that claim 6 distinguishes patentably over the references of record.

(E)     Claim 5 Distinguishes Patentably Over Goran in View of Diener

The appellant continues to disagree that Goran shows selecting between the leading edge detection 1585 and the channel estimation 1590 in Figure 15. As stated in column 3, lines 40-42 of Goran, "Fig. 15A shows an illustrative correlation signal that may be processed in accordance with the principles of the invention;" The appellant continues to assert that Figure 15A and column 22, lines 43-59 do not show a step of deciding between two processing methods. The method as set forth in column 3, lines 37-39 of Goran "Fig. 15 is yet another flow chart showing illustrative steps that may be performed during wireless asset allocation identification in accordance with the principles of the invention". Thus, Figure 15 shows the steps; Figure 15A illustrates a signal. Figure 15 shows only a single decision step 1575. Column 22, lines 43-59 set various embodiments of processing steps that could be used to estimate the time of arrival in step 1580 of Goran. Because Diener, like Goran, has only a single decision step, it is submitted that combining Goran with Diener does not create a second decision step, much less decision steps that determine if a signal is above a threshold value; selecting a correlation processing operation when the signal level is below the threshold value; and selecting a leading edge processing operation when the leading edge gradient is below a gradient

threshold. Goran just does not show selecting one of two processing operations by any criteria, much less by the criteria specified in claim 5. Diener, which is also a single step decision criteria, does not teach or refine Goran additional steps for deciding between two processing operations, much less the two specified in claim 5.

### (F)     Claim 14 Distinguishes Patentably Over Goran

The appellant has repeatedly called for the Examiner to supply references pursuant to MPEP § 2144.03 in support of his allegations of allegedly well-known prior art during the prosecution of this application. These requests have repeatedly been ignored and no reference has been supplied. Now, in the Examiner's Answer which, of course, is not only After Final but also after the filing of an Appeal Brief, the Examiner for the first time seeks to introduce what is purported to be the requested evidence. Not only has this evidence been submitted untimely, the Examiner has not made the reference of record.

Moreover, Habitz is non-analogous art. As stated in column 2, lines 31-34 of Habitz:

> The present invention uses the capacitance and resistance of conductors of an IC device as parameters in determining a power limit that maintains a required temperature environment that insures the reliability of the device.

Moreover, the Examiner does not even attempt to make a showing as to why one would be motivated to use the formula i=Cdv/Dt in the Goran system or how one might use it or what one might hope to achieve by using it.

Accordingly, it is submitted that, for the reasons set forth in the Appeal Brief, the Examiner has not made a *prima facie* showing of obviousness, with or without the Habitz patent.

### (G)     Claim 17 is Not Anticipated By Goran

The Examiner's withdrawal of the 35 U.S.C. § 101 rejection is noted with appreciation.

The appellant reaffirms the arguments previously submitted and rebutted above that step 1575 in Figure 15 of Goran merely decides whether to estimate the time of arrival. If the decision is made to estimate the time of arrival,

then whichever of the many time of arrival estimating processes is found in a given embodiment of block 1580 of Goran is used. Nothing in Goran suggests selecting between two time of arrival estimation processes. Column 22, lines 43-59 set forth various embodiments of time of arrival estimation processes, but do not set forth any criteria for selecting among them. Figure 15A of Goran is illustrative of a correlation signal that might be processed, while Figure 15 of Goran is the process. As will be noted from Figure 15 and the description thereof in column 22, the only decision is whether or not to estimate the time of arrival. Goran discloses no steps for applying tests to select among a plurality of different time of arrival estimation techniques.

Accordingly, it is submitted that claim 17 is not anticipated by Goran.

### (H) Claims 20-22 & 26 Are Not Anticipated By Goran

Claim 20 calls for selecting between a correlation processing operation and a leading edge processing operation. As previously discussed, decision block 1575 of Goran merely decides whether or not to estimate the time of arrival and does not select between two techniques.

Moreover, claim 20 calls for applying the test to radio frequency signals which have not been subject to a correlation processing operation. Figure 15 of Goran in block 1570 and column 22, lines 22-24 clearly call for a correlation processing operation prior to the decision block 1575 and prior to any decision making, which the appellant asserts is not present, within block 1580 of Goran to decide among processing operations. Because claim 20 calls for the test to be performed on signals which have not been subject to correlation processing and, in Goran, the correlation processing of box 1570 is a precursor to any testing, it is submitted that claim 20 and claims 21, 22, and 26 dependent therefrom are not anticipated by Goran.

### (I) Claim 23 Distinguishes Patentably Over Goran as Modified By Diener

The appellant continues to assert that there is no second test in Goran, much less a second test of determining whether the peak 1502 is able to be distinguished from the peak 1504 or overlaps with multipeak 1504 as the Examiner asserts is disclosed in Figure 15A and column 22, lines 43-59. To the contrary,

Figure 15 shows the process. Figure 15A merely illustrates an exemplary signal upon which the process can be performed. The discussion of Figure 15A at column 22, lines 50-59 makes no suggestion of any test. Rather, this section of Goran merely describes exemplary signals. Because Goran does not disclose a second test as the Examiner alleges and because Diener is not alleged to, and, in fact, does not cure this shortcoming of Goran, it is submitted that claim 23 distinguishes patentably and unobviously over the references of record.

(J)    Claim 24 Distinguishes Patentably Over Goran As Modified By Diener

As previously discussed numerous times above, the appellant and the Examiner appear to have reached an issue as to whether Goran discloses a second test. For the reasons set forth above, it is submitted that Goran does not disclose a second test.

Moreover, claim 24 calls for the leading edge processing operation to be selected in response to the leading edge gradient being below the gradient threshold value. Even if Figure 15A of Goran somehow teaches a test to distinguish between a line of sight peak 1502 and a multipeak 1504, that Goran does not teach using a gradient threshold. Indeed, in looking at Figure 15A of Goran, it will be seen that the slope of the leading edge of the line of sight peak 1502 and the slope of the leading edge of the multipeak 1504 are substantially the same. It is submitted that a gradient threshold technique would not reliably distinguish between peaks 1502 and 1504. Hence, Figure 15A of Goran teaches against differentiating between the line of sight peak 1502 and the multipeak 1504 based on a gradient or slope threshold.

It is further submitted that no matter how the Examiner tries to modify Goran with Diener, one will still not be taught how to use a gradient threshold as a valid test criteria for differentiating between the two slopes of peaks 1502 and 1504 that are substantially the same.

Accordingly, and for the reasons previously submitted, it is submitted that claim 24 distinguishes patentably and unobviously over the references of record.

### (K)     Claim 27 is Patentable Over Diener

The appellant would like to thank the Examiner for clarifying that he is interpreting decision box 1575 in Figure 15 of Goran as a first decision step and that he is interpreting Goran as having a second step which is not shown in Figure 15.

First, the appellant asserts that Goran does not disclose such a second step. Decision box 1575 of Figure 15 of Goran decides whether or not to estimate the time of arrival. The Examiner points to Figures 15 and 15A and column 22, lines 23-59 for a second test.

Second, even if Goran were to determine whether the signal is a line of sight peak or a multipeak, it is submitted that Goran does not disclose applying different processing in each instance.

Third, claim 27 calls for determining whether the signal received is below a threshold value, which the Examiner is interpreting as the decision step 1575. Further, claim 27 calls for selecting a correlation processing operation if the level is below the threshold. Under the Examiner's interpretation of Goran, to meet claim 27, the decision block 1575 of Goran would need to decide between selecting correlation processing and selecting to move on to a second testing step. The Examiner does not allege and Goran does not in fact select correlation processing in response to a threshold criteria before a second testing step.

Fourth, claim 27 calls for two tiers of tests, each of which can result in the result in the selection of one of the two processing techniques. Specifically, if the signal level is below the threshold value in the first test, then the correlation processing operation is selected. If the signal is above the threshold value, then the second test is performed. If a leading edge gradient is above a gradient threshold value in the second test, then the correlation processing operation is selected. However, if the leading edge gradient value is above the gradient threshold value, then the leading edge processing operation is selected.

As the Examiner is interpreting Goran, the decision as to which of the two processing techniques is made by the second test (which, for the reasons set forth above, the appellant asserts does not exist and is not applied by Goran) and not by the decision step 1575. Thus, even as (mis)interpreted by the Examiner, Goran still does not meet the limitations of claim 27. Even if Diener were to teach one to replace the alleged second test with a gradient test, the combination would still not show a

decision process in which decisions about processing are made after both the first and second steps.

Fifth, for the reasons set forth in the Appeal Brief, it is submitted that Diener would not teach or fairly suggest comparing a leading edge gradient to a gradient threshold in order to decide between leading edge processing and correlation processing. Still further, because the leading edge gradient of the line of sight pulse 1502 and the leading edge gradient of multipeak 1504 of Figure 15 of Goran are substantially the same, it is submitted that a leading edge gradient test in which the leading edge gradient is compared to a gradient threshold value would fail to distinguish the line of sight pulses from the multipulses as the Examiner alleges.
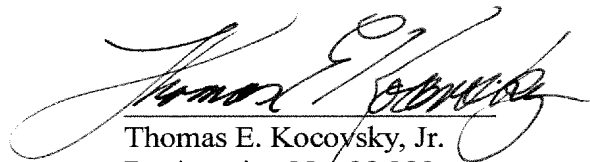
Accordingly, it is submitted that claim 27 distinguishes patentably over the references of record.

## CONCLUSION

For the reasons set forth above, in the Appeal Brief, and in the Examiner's Answer, it is submitted that no claims are anticipated by any of the references of record and that all claims are patentable over the references of record.

An early Decision reversing the Examiner's rejection of all claims is requested.

Respectfully submitted,

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